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<110> Schnorr, Kirk Matthew
Landvik, Sara

<120> GH-61 Polypeptides

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<170> PatentIn version 3.2

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| gcc cac tac acc ttc ccg cag acg gac atc aac ggc cag ctc tcc ggc | 96 |
| Ala His Tyr Thr Phe Pro Gln Thr Asp Ile Asn Gly Gln Leu Ser Gly | |
| -1 1 5 10 15 | |

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| gaa tgg gtg acg atc cgt gag acg acg aac cac tac tcg cac ggg ccg | 144 |
| Glu Trp Val Thr Ile Arg Glu Thr Thr Asn His Tyr Ser His Gly Pro | |
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| gtc acc gac gtc acg tcg gac cag atc cgc tgc tac gag ctc aac ccg | 192 |
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| ggc acc ccc gcg ccc cag atc gcc acg gtg cag gcc ggc ggc acc gtg | 240 |
| Gly Thr Pro Ala Pro Gln Ile Ala Thr Val Gln Ala Gly Gly Thr Val | |
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| | |
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| acc ttc acc gtc gac cca agc atc cag cac ccg ggc ccg ctg cag ttc | 288 |
| Thr Phe Thr Val Asp Pro Ser Ile Gln His Pro Gly Pro Leu Gln Phe | |
| 65 70 75 | |

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| tac atg gcc aag gcg ccg tcg ggc cag acc gcc gcc acc ttc cag ggc | 336 |
|---|-----|

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|
| Tyr | Met | Ala | Lys | Ala | Pro | Ser | Gly | Gln | Thr | Ala | Ala | Thr | Phe | Gln | Gly | | |
| 80 | | | | | 85 | | | | | 90 | | | | | 95 | | |
| acc | ggc | aac | gtc | tgg | ttc | aag | atc | tac | gag | gac | ggc | ccg | tcc | ggc | ctc | | 384 |
| Thr | Gly | Asn | Val | Trp | Phe | Lys | Ile | Tyr | Glu | Asp | Gly | Pro | Ser | Gly | Leu | | |
| | | | | 100 | | | | | 105 | | | | | 110 | | | |
| ggc | acc | agc | aac | atc | acc | tgg | cct | agc | agc | ggc | aaa | acc | gaa | gtc | agc | | 432 |
| Gly | Thr | Ser | Asn | Ile | Thr | Trp | Pro | Ser | Ser | Gly | Lys | Thr | Glu | Val | Ser | | |
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| gtc | aag | atc | ccc | tgc | tgc | atc | gcg | ccg | ggc | gac | tac | ctc | ctg | cgc | gtg | | 480 |
| Val | Lys | Ile | Pro | Ser | Cys | Ile | Ala | Pro | Gly | Asp | Tyr | Leu | Leu | Arg | Val | | |
| | | 130 | | | | | 135 | | | | | 140 | | | | | |
| gag | cac | atc | gcg | ctg | cac | agc | gcc | agc | acc | gtc | ggc | ggc | gcc | cag | ttc | | 528 |
| Glu | His | Ile | Ala | Leu | His | Ser | Ala | Ser | Thr | Val | Gly | Gly | Ala | Gln | Phe | | |
| | 145 | | | | | 150 | | | | | 155 | | | | | | |
| tac | ctc | gcg | tgc | gcc | cag | ctg | acc | gtc | acc | ggc | ggc | acc | ggc | acc | ctc | | 576 |
| Tyr | Leu | Ala | Cys | Ala | Gln | Leu | Thr | Val | Thr | Gly | Gly | Thr | Gly | Thr | Leu | | |
| 160 | | | | | 165 | | | | | 170 | | | | | 175 | | |
| aac | acg | ggc | gag | ctc | gtc | gcc | ttc | ccc | ggc | gcc | tac | agc | gcc | acc | gac | | 624 |
| Asn | Thr | Gly | Glu | Leu | Val | Ala | Phe | Pro | Gly | Ala | Tyr | Ser | Ala | Thr | Asp | | |
| | | | | 180 | | | | | 185 | | | | | 190 | | | |
| ccg | ggc | atc | ctc | ttc | cag | ctg | tac | tgg | ccc | atc | ccg | acc | agc | tac | acc | | 672 |
| Pro | Gly | Ile | Leu | Phe | Gln | Leu | Tyr | Trp | Pro | Ile | Pro | Thr | Ser | Tyr | Thr | | |
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| aac | ccc | ggc | ccg | gcg | ccc | gtt | agc | tgc | | | | | | | | | 699 |
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| | | | | | | | | | | | | | | | | |
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| Ala | His | Tyr | Thr | Phe | Pro | Gln | Thr | Asp | Ile | Asn | Gly | Gln | Leu | Ser | Gly | |
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Glu | Trp | Val | Thr | Ile | Arg | Glu | Thr | Thr | Asn | His | Tyr | Ser | His | Gly | Pro | |
| | | | 20 | | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Thr | Asp | Val | Thr | Ser | Asp | Gln | Ile | Arg | Cys | Tyr | Glu | Leu | Asn | Pro | |
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Gly Thr Pro Ala Pro Gln Ile Ala Thr Val Gln Ala Gly Gly Thr Val
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Thr Phe Thr Val Asp Pro Ser Ile Gln His Pro Gly Pro Leu Gln Phe
65 70 75

Tyr Met Ala Lys Ala Pro Ser Gly Gln Thr Ala Ala Thr Phe Gln Gly
80 85 90 95

Thr Gly Asn Val Trp Phe Lys Ile Tyr Glu Asp Gly Pro Ser Gly Leu
100 105 110

Gly Thr Ser Asn Ile Thr Trp Pro Ser Ser Gly Lys Thr Glu Val Ser
115 120 125

Val Lys Ile Pro Ser Cys Ile Ala Pro Gly Asp Tyr Leu Leu Arg Val
130 135 140

Glu His Ile Ala Leu His Ser Ala Ser Thr Val Gly Gly Ala Gln Phe
145 150 155

Tyr Leu Ala Cys Ala Gln Leu Thr Val Thr Gly Gly Thr Gly Thr Leu
160 165 170 175

Asn Thr Gly Glu Leu Val Ala Phe Pro Gly Ala Tyr Ser Ala Thr Asp
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Asn Pro Gly Pro Ala Pro Val Ser Cys
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Ala Ile Phe Gln Arg Val Ser Val Asn Gly Val Asp Gln Gly Gln Leu
                    5                      10                      15

aag ggc gtg cgg gct ccc tcg agc aac tac ccc att gag aac gtc aac      144
Lys Gly Val Arg Ala Pro Ser Ser Asn Tyr Pro Ile Glu Asn Val Asn
                20                      25                      30

cac ccc gac ttt gcc tgc aac acc aac atc cgg cac cgc gac ggc acc      192
His Pro Asp Phe Ala Cys Asn Thr Asn Ile Arg His Arg Asp Gly Thr
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Val Ile Lys Ile Pro Ala Gly Ala Thr Val Gly Ala Trp Trp Gln His
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gag atc ggc ggg ccc tcg ttc ccc ggt gat ccg gat aac ccg atc gct      288
Glu Ile Gly Gly Pro Ser Phe Pro Gly Asp Pro Asp Asn Pro Ile Ala
                70                      75                      80

gcc tcg cac aag ggc ccc atc caa gtc tat ctc gcc aag gtc gac aac      336
Ala Ser His Lys Gly Pro Ile Gln Val Tyr Leu Ala Lys Val Asp Asn
                85                      90                      95

gcc gct acc gcc tct ccc aac ggc ctg cgg tgg ttc aag att gcc gag      384
Ala Ala Thr Ala Ser Pro Asn Gly Leu Arg Trp Phe Lys Ile Ala Glu
                100                      105                      110

aag ggc ctg tcg ggc ggc gtc tgg gcc gtc gac gag atg atc cgc aac      432
Lys Gly Leu Ser Gly Gly Val Trp Ala Val Asp Glu Met Ile Arg Asn
                115                      120                      125

aac ggc tgg cac tac ttc acc atg ccg cag tgc atc gcg ccc ggc cac      480
Asn Gly Trp His Tyr Phe Thr Met Pro Gln Cys Ile Ala Pro Gly His
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tac ctg atg cgc gtc gag ctg ctg gcg ctg cac tcg gcc agc ttc ccc      528
Tyr Leu Met Arg Val Glu Leu Leu Ala Leu His Ser Ala Ser Phe Pro
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 Ser Gly Asn Phe Ser Pro Ser Glu Thr Val Ser Phe Pro Gly Ala Tyr
 180 185 190

 ccg gcc aac cac ccg ggt atc gtc gtc agc atc tac gac gcc cag ggt 672
 Pro Ala Asn His Pro Gly Ile Val Val Ser Ile Tyr Asp Ala Gln Gly
 195 200 205

 aac gcc aac aac ggc ggg cgc gag tac cag atc ccc ggg ccg cgg ccg 720
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 Ile Thr Cys Ser Gly Gly Gly Ser Asn Asn Gly Gly Gly Asn Asn Asn
 230 235 240

 ggt ggt gga aac aat aac ggc ggc ggc ggc aac aac aac ggc ggt ggg 816
 Gly Gly Gly Asn Asn Asn Gly Gly Gly Gly Asn Asn Asn Gly Gly Gly
 245 250 255

 aac aac aac ggt ggc ggt aac acc ggt ggc ggc tcg gcg ccg ctc tgg 864
 Asn Asn Asn Gly Gly Gly Asn Thr Gly Gly Gly Ser Ala Pro Leu Trp
 260 265 270

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 Gly Gln Cys Gly Gly Asn Gly Tyr Ser Gly Pro Thr Thr Cys Ala Glu
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Lys Gly Val Arg Ala Pro Ser Ser Asn Tyr Pro Ile Glu Asn Val Asn
 20 25 30

His Pro Asp Phe Ala Cys Asn Thr Asn Ile Arg His Arg Asp Gly Thr

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| 35 | 40 | 45 | | | | | | | | | | | | | | | | | |
| Val | Ile | Lys | Ile | Pro | Ala | Gly | Ala | Thr | Val | Gly | Ala | Trp | Trp | Gln | His | | | | |
| 50 | | | | | 55 | | | | | 60 | | | | 65 | | | | | |
| Glu | Ile | Gly | Gly | Pro | Ser | Phe | Pro | Gly | Asp | Pro | Asp | Asn | Pro | Ile | Ala | | | | |
| | | | | 70 | | | | | 75 | | | | | 80 | | | | | |
| Ala | Ser | His | Lys | Gly | Pro | Ile | Gln | Val | Tyr | Leu | Ala | Lys | Val | Asp | Asn | | | | |
| | | | 85 | | | | | 90 | | | | | 95 | | | | | | |
| Ala | Ala | Thr | Ala | Ser | Pro | Asn | Gly | Leu | Arg | Trp | Phe | Lys | Ile | Ala | Glu | | | | |
| | | 100 | | | | | 105 | | | | | 110 | | | | | | | |
| Lys | Gly | Leu | Ser | Gly | Gly | Val | Trp | Ala | Val | Asp | Glu | Met | Ile | Arg | Asn | | | | |
| | 115 | | | | | 120 | | | | | 125 | | | | | | | | |
| Asn | Gly | Trp | His | Tyr | Phe | Thr | Met | Pro | Gln | Cys | Ile | Ala | Pro | Gly | His | | | | |
| 130 | | | | | 135 | | | | | 140 | | | | 145 | | | | | |
| Tyr | Leu | Met | Arg | Val | Glu | Leu | Leu | Ala | Leu | His | Ser | Ala | Ser | Phe | Pro | | | | |
| | | | | 150 | | | | | 155 | | | | | 160 | | | | | |
| Gly | Gly | Ala | Gln | Phe | Tyr | Met | Glu | Cys | Ala | Gln | Ile | Glu | Val | Thr | Gly | | | | |
| | | | 165 | | | | | 170 | | | | | 175 | | | | | | |
| Ser | Gly | Asn | Phe | Ser | Pro | Ser | Glu | Thr | Val | Ser | Phe | Pro | Gly | Ala | Tyr | | | | |
| | | 180 | | | | | 185 | | | | | 190 | | | | | | | |
| Pro | Ala | Asn | His | Pro | Gly | Ile | Val | Val | Ser | Ile | Tyr | Asp | Ala | Gln | Gly | | | | |
| | 195 | | | | | 200 | | | | | 205 | | | | | | | | |
| Asn | Ala | Asn | Asn | Gly | Gly | Arg | Glu | Tyr | Gln | Ile | Pro | Gly | Pro | Arg | Pro | | | | |
| 210 | | | | | 215 | | | | | 220 | | | | | 225 | | | | |
| Ile | Thr | Cys | Ser | Gly | Gly | Gly | Ser | Asn | Asn | Gly | Gly | Gly | Asn | Asn | Asn | | | | |
| | | | | 230 | | | | | 235 | | | | | 240 | | | | | |
| Gly | Gly | Gly | Asn | Asn | Asn | Gly | Gly | Gly | Gly | Asn | Asn | Asn | Gly | Gly | Gly | | | | |
| | | | 245 | | | | | 250 | | | | | 255 | | | | | | |
| Asn | Asn | Asn | Gly | Gly | Gly | Asn | Thr | Gly | Gly | Gly | Ser | Ala | Pro | Leu | Trp | | | | |
| | | 260 | | | | | 265 | | | | | 270 | | | | | | | |

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 Ala Ser Ala His Tyr Ile Trp Thr Thr Leu Thr Ala Gly Gly Gln Thr
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 Thr Ser Ala Val Ile Arg Gln Pro Leu Asn Asn Ser Pro Val Glu Asp
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 Val Ser Ser Pro His Met Arg Cys Asn Val Asn Pro Met Pro Ala Ser
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 cag acc ctc aac gtt cag gcc gcc tcc agc gtc acc ttc cgc ctc gac 240
 Gln Thr Leu Asn Val Gln Ala Gly Ser Ser Val Thr Phe Arg Leu Asp
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 aac acc ctc tac cac ccc gcc gcc ccc gcc gcc atc tac ctc gcc caa gtc 288
 Asn Thr Leu Tyr His Pro Gly Pro Ala Ala Ile Tyr Leu Gly Gln Val
 65 70 75
 ccc gcc gcc cag acc gcc gcc tct tgg gac gga agc ggt gct aac tgg 336
 Pro Ala Gly Gln Thr Ala Ala Ser Trp Asp Gly Ser Gly Ala Asn Trp
 80 85 90

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| ttc aag atc gac gag ttc ggc gcc cag ttc aac ccc ttc cgc ttc atc | 384 |
| Phe Lys Ile Asp Glu Phe Gly Ala Gln Phe Asn Pro Phe Arg Phe Ile | |
| 95 100 105 | |
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| ccc gac ggc cag agc cag ctc tcc acc acc atc ccc tcc aac act ccc | 432 |
| Pro Asp Gly Gln Ser Gln Leu Ser Thr Thr Ile Pro Ser Asn Thr Pro | |
| 110 115 120 125 | |
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| agc ggc gag tac ctc ctc cgc atc gag cac atc ggt ctc cac gtc gcc | 480 |
| Ser Gly Glu Tyr Leu Leu Arg Ile Glu His Ile Gly Leu His Val Ala | |
| 130 135 140 | |
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| ggc gct ccc caa tac tac atc tcc tgc gcc caa atc cgc gtt aat ggc | 528 |
| Gly Ala Pro Gln Tyr Tyr Ile Ser Cys Ala Gln Ile Arg Val Asn Gly | |
| 145 150 155 | |
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| ggt gga ggc ggc aac cca ccc aag gtc tcc atc ccc gga tac gtc tcg | 576 |
| Gly Gly Gly Gly Asn Pro Pro Lys Val Ser Ile Pro Gly Tyr Val Ser | |
| 160 165 170 | |
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| agg aac gac ccc ggt ctc acc gtc aac atc cac tgg ccc atc ccc acc | 624 |
| Arg Asn Asp Pro Gly Leu Thr Val Asn Ile His Trp Pro Ile Pro Thr | |
| 175 180 185 | |
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| tcc tac acc gtc ccc gga ccc cgc ccc tgg agg gga | 660 |
| Ser Tyr Thr Val Pro Gly Pro Arg Pro Trp Arg Gly | |
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| |
|---|
| Thr Ser Ala Val Ile Arg Gln Pro Leu Asn Asn Ser Pro Val Glu Asp |
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| |
|---|
| Val Ser Ser Pro His Met Arg Cys Asn Val Asn Pro Met Pro Ala Ser |
| 30 35 40 45 |

| |
|---|
| Gln Thr Leu Asn Val Gln Ala Gly Ser Ser Val Thr Phe Arg Leu Asp |
| 50 55 60 |

| |
|---|
| Asn Thr Leu Tyr His Pro Gly Pro Ala Ala Ile Tyr Leu Gly Gln Val |
|---|

| 65 | 70 | 75 |
|---|-----|-----|
| Pro Ala Gly Gln Thr Ala Ala Ser Trp Asp Gly Ser Gly Ala Asn Trp | | |
| 80 | 85 | 90 |
| | | |
| Phe Lys Ile Asp Glu Phe Gly Ala Gln Phe Asn Pro Phe Arg Phe Ile | | |
| 95 | 100 | 105 |
| | | |
| Pro Asp Gly Gln Ser Gln Leu Ser Thr Thr Ile Pro Ser Asn Thr Pro | | |
| 110 | 115 | 120 |
| | | |
| Ser Gly Glu Tyr Leu Leu Arg Ile Glu His Ile Gly Leu His Val Ala | | |
| 130 | 135 | 140 |
| | | |
| Gly Ala Pro Gln Tyr Tyr Ile Ser Cys Ala Gln Ile Arg Val Asn Gly | | |
| 145 | 150 | 155 |
| | | |
| Gly Gly Gly Gly Asn Pro Pro Lys Val Ser Ile Pro Gly Tyr Val Ser | | |
| 160 | 165 | 170 |
| | | |
| Arg Asn Asp Pro Gly Leu Thr Val Asn Ile His Trp Pro Ile Pro Thr | | |
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| Ser Tyr Thr Val Pro Gly Pro Arg Pro Trp Arg Gly | | |
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